

*Waste incineration is a controversial issue, because of the environmental problems associated with it and the various economic interests involved. The public debate is carried by municipal governments, the industry, social movements and individual citizens. It is this particular environment that is studied in the following article, focussing mainly on the situation in Spain, with some examples taken from a study on the situation in England.*

*Abstract & Keywords* ⇨ p. 316

# Waste Policy and Industry in a Contentious Environment

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## A research on public contention over new risks and environmental policies

In this paper, I do not attempt to provide a systematic account of waste policy because the research on which it is grounded focuses on risk perception in cases of contention over waste incineration in Spain and England, not on the analysis of waste policies as such. These controversies emerged in both countries during this decade with different intensity, and we studied the activities of a set of organisations and persons that led to opposed definitions of the effects of waste incineration. This contrast is the point of departure of our approach to this subject in terms of two contending discourses, in favour and against waste incineration, which we have termed 'techno-scientific' and environmentalist. While businessmen, politicians and administration officials usually regard these technologies as innocuous to human health and consider their environmental impact as irrelevant, environmental groups in both countries define them as a dangerous threat to the health of those who live close to a plant, being a source of toxic emissions with a high carcinogenic potential.

The concept of *discourse* is a theoretical abstraction commonly used to refer to the way in which a social actor's perspective is made explicit through language. In this research, we follow the simple operative definition employed by Hank Johnston in

his study of Catalan nationalism: discourse analysis is a method that "attempts to explain the production and interpretation of speech as it is produced in natural contexts of interaction as well as in written texts, which the movements organisations spread".<sup>[2]</sup> This notion is consistent with our aim to investigate how and why these collective definitions 'resonate' among significant sectors of the population and shape their perception of environmental problems. To that goal, our research in Spain focused on the frames of meanings, discourses and strategies promoted by the main collective actors and institutions dealing with problems of waste management and, more specifically, with the construction and functioning of incineration plants. These collective and institutional actors are: (i) environmental movement organisations which mobilised against waste incineration at both a local and national level; (ii) governmental agencies and politicians responsible for or concerned with waste management the use of these technologies at both a local and national level; (iii) private companies and associations promoting and implementing these policies by financing, constructing and running the incineration plants.

The main information in our study comes from: (i) ethnographic data, based on the researcher's direct observation of the relevant settings, objects and individual behaviour in each of the cases investigated; (ii) forty-five in-depth interviews with persons belonging to the aforementioned collective actors involved in the controversies on waste problems. Besides interviewing, data collection has been carried out by means of direct observation techniques. The information obtained by means of these techniques was expanded with the analysis of internal and public



**Photograph:** TIRME, domestic waste incinerator at Son Reus, Majorca.

documents produced by these organisations and by analysing the press and media reports at both local and national levels. A kind of discourse analysis based on sociolinguistics and on content analysis has also been applied to the Spanish cases.

The basic information in this research comes from fieldwork on selected case studies where incineration plants and other waste treatment facilities are being promoted, built or are working at present. The degree of conflict and public controversy that has surrounded the implementation of environmental policies on waste management provides basic criteria for this selection, but it was not the only one. In order to increase our knowledge of these processes of contention, we also investi-

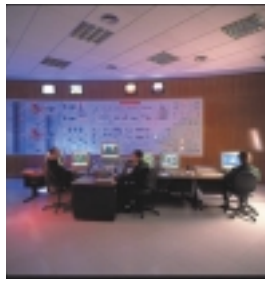
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gated cases where there has been little or no contention. In Spain, our research focused on the cases of Madrid (Rivas) and Majorca (Son Reus), Biscay (Erandio) and Barcelona (San Adriá, Zona Franca and Mataró). Research in England has focused on several highly contentious proposals for energy from waste-incineration plants: Portsmouth; Halling and Kingsnorth, Kent, where proposed 'waste-to-energy' incinerators were abandoned by the developers either because of strong local objections or technical difficulties, but only after vigorous local campaigns had been mounted in opposition to the proposals; Allington, Kent, where the local waste authority has recently approved a 500,000 tonnes per annum 'waste-to-energy' incinerator, despite strong local objections and a long-running campaign of opposition. This is the biggest incinerator of those investigated in both countries.<sup>2)</sup>

In Spain, the Basque incinerator deserves attention because its construction was delayed for more than six years and had not yet obtained the final licences in September 2000. Named after the company which has promoted it with the participation of Biscay's Regional council, the Zabalgardi project has been the subject of intensive campaigns and considerable investment to promote it. Part of its interest lies in features such as the contention which it has motivated in Biscay, the change of location of the plant, the participation of public capital and its relation with the Basque Nationalist Party's goal of self-determination. This incinerator was originally planned to be built in the city of Erandio, but for various reasons, in June 1997 the decision was taken to change its location to an area close to Artigas, Bilbao's main landfill, which is located in this city. These reasons have been defined as legal (concerning a complicated property structure) and technical (inadequacy of Erandio's land for this purpose) by the persons interviewed who work for this Project and in the Regional Government promoting the current Integral Plan for Waste Management in Bilbao.<sup>3)</sup>

However, the information gathered from our interviews to activists and to high public administration officials in the town where it was originally planned, together with that of the press, suggests that social movement organisations opposing the plant has been a prominent factor in this decision. While the Zabalgardi Project was being promoted in Erandio, one of the firms integrated in this consortium of public and private enterprises, Iberdrola, decided to withdraw from it. This was explained by the central role played by the Basque ultra-nationalist party, Herri Bata-



**Photograph: TIRME, domestic waste incinerator at Son Reus, Majorca.**

sunna, which was the main organisation opposing the project and also the political wing of the Basque ultra-nationalist movement, led by the terrorist organisation ETA.<sup>3)</sup> One of the politicians interviewed implicitly related Iberdrola's withdrawal from the Project with what occurred in the Lemoniz power station in the 1980s, whose director was killed by ETA.<sup>[29]</sup> He closely related the economic bankruptcy of Iberdrola with this conflict.

This is a peculiar feature of the contention over the Zabalgardi incinerator which was not present in the rest of the cases studied and explains the long delay (six years until September 2000) its construction has suffered. This is an extreme case of contention under the threat of a terrorist attack, which is interesting for our research due to the importance of the local context in which it arose. The mentioned feature can also be seen as a dramatic illustration of Beck's claim (1992) regarding the commercial risks faced by those enterprises whose production is framed as a source of environmental hazards. Beck's contention that these companies are placed 'under the line of fire of public opinion' acquires an especially realistic meaning in this case, if we change the term 'public opinion' to 'terrorist organisations'. While ETA is not an environmentalist organisation, its political organisation has been taking part in environmental conflicts in the Basque country, as part of a strategy designed to attain the 'hegemony' of the terrorist vanguard among the main social movements which I have analysed elsewhere.<sup>[4]</sup>

As became manifest in our fieldwork in Spain, waste incineration is part of a larger framework of waste policies in which decisions and practices dealing with this environmental problem are taken. In spite of the fact that our questionnaire did not begin with questions about waste policies, and we only referred to them when eliciting information, the interviewees frequently talked about these policies right from the very start of the interview. This indicates the diffusion of a systemic frame of

reference in the way these persons dealt with the environmental issues investigated. The term 'waste treatment integrated system' was commonly used in written documents and verbal accounts by the private and public company officials who promoted or ran incinerators, and who framed them as the technology implementing a rational sustainable policy complementing others, such as recycling through domestic waste separation at source. This is how the notion of a *system*, as a set of interrelated policies, was used in the discourses advocating waste incineration. This notion is directly related to the word *ecology* – namely, the 'branch of science concerned with the interrelationships of organisms and their environment'.<sup>[5]</sup>

The wide diffusion of this systemic approach to environmental problems can be viewed as a result of a parallel increase in the kind of environmental consciousness which has been predicated by an influential sociological theory focusing on the central role of technological risks as a constitutive element of these societies. Nevertheless, in Beck's *risk society*, this systemic approach has also been viewed as an obstacle to finding solutions to these problems, as a source of what he calls the 'organised irresponsibility'.<sup>[6]</sup> He claims that the interdependence between different organisations which deal with modernisation risks, in the fields of business, agriculture, law and politics, obstructs the search for their causes and responsibilities.<sup>[7]</sup> This conception of an interrelated set of different policies trying to deal with waste in

2) Less contentious were: Tysely, Birmingham, where a newly built 'waste-to-energy' incinerator on the site of an old incinerator provoked negligible local opposition but where Friends of the Earth has subsequently (but ineffectually) protested against the operation of the plant; South East London Combined Heat and Power (SELCHAP), Deptford, an existing 'waste-to-energy' incinerator commissioned in the early 1990s which encountered only moderate opposition and whose operators have mounted a very effective public relations campaign among local residents. In order to put contention over incineration into the context of wider waste management issues, also studied were Essex where a draft local waste plan which entails incineration but has not designated any particular sites is being resisted by a consortium of local councils, and Lamberhurst Farm, Dargate, Kent where a proposal for an integrated waste treatment facility involving highly engineered land-raise (but not incineration) has stimulated a long-running local campaign and a community recycling and composting scheme". (Written by Chris Rootes in the Introduction to [1])

3) Erandio Bizirik was an association of neighbours linked to Herri Batasuna who played an active role in the mobilisations against what was still only a project, which had not been debated in the Erandio council meetings.

sustainable ways also comprises the *three-R policy*, which emphasises a sequential order of the measures (reduce, reuse and recycle) needed to deal with this environmental problem. In any case, the wide acceptance of this notion observed in our case studies does not imply the existence of a consensus on the meaning of these verbs nor on the way to implement these policies, as I will argue here and as the recent contention in both countries shows.

### Some methodological issues in the study of waste policies

In the comparative analysis of waste policies, a common source of information is the quantitative data on these policies in different countries. These data have been the ground for a recurrent diagnosis in the discourse promoting waste incineration, which establishes a correlation between waste incineration and social development. "Less advanced countries happen to be the ones that neither recycle nor obtain energy from their domestic waste"<sup>[8,9]</sup> This correlation holds for countries such as Greece, Ireland and Portugal. However, the situation in England contradicts this assertion, since this country only incinerates 8% of its waste, and dumps 90% of it to the landfills, in spite of being the birthplace of the Industrial Revolution and the producer of the largest amount of domestic waste in Europe with an estimated 30 million tons a year<sup>[8]</sup> – a fact which does not mean that England is a more advanced country, but simply the biggest waste producer.

A methodological problem is that such data do not always reflect the reality due to the different criteria used in each country to compare the different outputs of waste management policies. The rate of recycling in Spain has been presented as an example of this problem by a technician working for one of the main incinerators in Spain.<sup>[10]</sup> Her argument was that this rate is higher than what it is in reality, and she attributes this to the criteria employed in these statistics, which include the cow manure used to fertilise the fields in the figures for composting. The rate of composting in the cattle farms is elaborated according to the estimates in each local council where they are located. This person related the problems of validity in current waste management statistics to their political significance and the impact they may have in the public image of those politicians dealing with environmental issues who are also the superior officials to those providing the information on their results at the local level.<sup>[10a]</sup> The differences in the utility of cow ma-

nure was also put into perspective by a Basque technician who argued that what was produced in excess in the northern regions of Spain became a need in the dry South.<sup>[11]</sup> As usually happens, while the source of these statistics on waste treatment is specified, there is no other information with regard to the way these data have been obtained when correlations such as the above-mentioned are made. The citizen has to assess their validity according to the source, i.e. its prestige, something he is not always aware of.

Another source of information on waste management are surveys on consumers' habits. Although this procedure specifies the way the information has been obtained, it also poses problems related to the social prestige attached to these habits in Western societies. These surveys deal with topics to which a positive social status is attributed, because information on 'environmentally correct habits', such as domestic waste separation at source, is looked for. Environmental movements are central actors in diffusing a positive image of such habits in which they are framed as central for a sustainable waste policy. However, surveys on this topic require specific observation techniques in order to verify the information provided by the citizens about their habits and to avoid the respondent's tendency to give a positive image of himself to the researcher by showing environmentally correct habits. The fact that respondents tend to make certain inferences regarding the researcher's motives, and these inferences are usually oriented in order to present a positive image of themselves, was highlighted by Cicourel long ago as a methodological problem in survey research.<sup>[12]</sup> This problem may be particularly relevant in surveys dealing with these topics. The observation techniques used in Navarra in order to investigate the consumers' waste disposal habits may be a way to avoid the problem.<sup>[13]</sup> These interviews were conducted at the households and the interviewer had to ask to see the kitchen in order to verify the information provided by interviewees on the patterns of waste separation at the household. If this demand was refused, the interview was not valid.

Our research has been guided by an effort to avoid the aforementioned problems with the help of observation techniques aimed at increasing the validity of the information obtained with the previously described methodology. To that goal, several central concepts and assumptions from the literature on social movements have been applied to investigate the social dynamics of the processes of risk perception in the contention over waste incinera-

tion. The conceptual apparatus provided by *frame analysis*, which focuses on the processes of persuasion leading to collective definitions of social issues has proved to be especially useful. A frame of reference is "an interpretative scheme which simplifies and condenses the 'world out there' by selectively punctuating and encoding objects, situations, events, experiences, and sequences of action within one's present or past environment".<sup>[14]</sup> A central assertion is that collective action frames not only highlight particular aspects of reality, but also function as "modes of attribution and articulation" of meanings to the issues. According to this view, for the frames promoted by the movements' organisations to reach their objectives, these need to fulfil three complementary framing tasks: (i) to focus their attention on a particular situation considered as problematic and attribute the responsibility for this situation to given people or facts (the creation of a *diagnostic frame*); (ii) to articulate solutions for solving this problem (*prognostic framing*); (iii) to motivate their potential followers to act in favour of these suggestions and to promise that they will do something in order to reach these solutions (*motivational framing*).<sup>[15,16]</sup> From this perspective, the resonance reached in public opinion by the collective definition of an issue promoted by a social movement organisation is viewed as a *'frame alignment process'*. Applied to our cases, this notion refers to the social dynamics and strategies which become successful in defining the effects of incineration for the public in the terms on which their contending discourses on waste incineration are based (considering waste incineration as a life threat as opposed to regarding the technologies used as innocuous).

### Symbolic mobilisations and sustainable policies

The use of the frame analysis approach for our research is based on a *constructionist assumption* according to which environmental movement organisations have become central collective actors in the emergence of a more sustainable waste policy because they raise the issues and promote the controversies which lead to those changes in the habits of the citizens which are increasingly viewed as a precondition of sustainable waste policies. This assumption was confirmed by the research findings on which my proposal to apply a revised notion of risk to the study of environmental contentions is grounded. This is a dy-



namic notion of risk, which differs from the one proposed by Ulrich Beck, on which it draws, in my emphasis on the processes of social construction by which environmental issues are publicly framed.<sup>[17]</sup>

My proposal is also grounded on a *constructionist assertion* about the nature of environmental contentions, such as the one we have studied, which claims that the perception of risk issues by a given population is not simply dependent on their 'objective' character, as defined by the usual scientific procedures of evaluation, nor can it be explained by these factors. Such perception is the result of symbolic and cognitive processes by which these risk issues become collectively defined and resonate among considerable sectors of the population. These mediating processes do not respond to what have been viewed as objective mechanisms established for their evaluation, and environmental movements play a central role in these public definitions. Although the risk society deserves the credit of highlighting the social dynamics underlying scientific evaluations of technological risks, a problem with this theory lies in its tendency to attribute a definitional power to the nature of these hazards. I view this tendency as related to a dominant trend in current sociology which attributes a determining power to social-structural conditions in order to explain individuals' behaviour and the cultural changes leading to the emergence of what Beck calls *risk consciousness* and to a new type of social organisation in which technological risks are the determining factor.

As I have also argued<sup>[17]</sup>, highlighting the centrality of the struggle for the public definition of technological risks is a contribution of the risk society theory which is consistent with the mentioned constructionist assumption and which has been confirmed in those cases where the contention against incineration arose in Spain (in Madrid, Majorca and Biscay). However, in these cases of contention, public and private organisations also *mobilised* themselves in a symbolic way, in order to counteract the environmentalists' definitional power and propel their own view on the effects of waste incineration. In the way it is used here, *mobilisation* is not a term exclusively applying to the visible of current social conflicts but also to those discourse strategies and activities of persuasion which are undertaken in order to solve conflicts arising among contending groups.

One of the sources of information on the waste industry in Spain I have used is a private association integrated by the main waste incinerator companies in Spain called AEVERSU (*Asociación Empresarial Valoración Energética* de R.S.U., Entre-

preneurial Association for the Energy Valuation of Domestic Waste). In a recent document, its goals are defined as 'the energy valuation of domestic waste' and as 'an instrument to protect the legitimate interests of its members'. The latter goal, the creation of this association, and its name, illustrates my previous argument on the mobilisation of the companies promoting waste incineration. The emphasis on 'energy valuation' as the association's first goal emphasises a linguistic aspect of this mobilisation that was also highlighted before. This term appears very frequently in these firms' written documents, their propaganda videotapes, as well as in our interviews with representatives of these companies. The name of the consortium of enterprises founded in 1993 to develop the project of the incinerator in Biscay: *Zabalgarbi* (a compound noun made up of the Basque words for 'valuation' and 'clean') further illustrates my point.

We also found evidence on the role of public institutions in the diffusion of a third discourse which bridges the gap between the contending discourses on waste incineration. In recent work, Hajer uses the concept of *ecological modernisation* to designate a type of discourse that has become increasingly dominant both among new environmental movements and public institutions since the second half of the 1980s.<sup>[18]</sup> He claims that this implies a change in the radicalised discourse that had been prevalent among ecologists during the 1970s, which located environmental problems in the structure of the industrial system and contended that solutions could only come from a change in this system. Hajer emphasises that the pragmatic solutions that institutions such as the Departments of the Environment were trying to apply in the Western world were opposing the radical ecologist discourse. Hajer claimed that there was a *complex social project* behind the ecological modernisation discourse and located at its centre 'the politico-administrative response to the latest manifestations of the ecological dilemma', such as the ozone layer depletion and global warming.<sup>[18a]</sup>

In contemporary sociological theory *complexity* refers to, among other things, the need to go beyond the *dualistic thinking*<sup>[19]</sup> that has been prevalent in modern societies. An example of the latter is the aforementioned radical discourse of the greens during the 1970s, according to which the technology-nature relation constituted a 'zero sum situation': when the former develops, the latter deteriorates; technological development can only take place at the expense of nature.<sup>[20]</sup> The ecological modernisation discourse does ac-

cept the structural character of environmental problems but, while the radical green discourse believes that the problem can only be solved 'if society breaks away from industrial modernisation', the eco-modernist discourse establishes that environmental problems can be solved by technical innovation and good management practices.<sup>[18b]</sup> We found evidence of this third discourse in the way public administration officials and politicians in Spain talked about the aforementioned 'integrated waste policies' which are operated by an incinerator but also include composting activities, as well as in their emphasis on the improvements of the present generation of incinerators with new expensive carbon filters, as a means of radically reducing their polluting effects.

## The different meanings of a sustainable policy

If we apply the technical terms from the social movement literature that were introduced above, a sustainable waste policy is a *prognostic frame*, a set of actions and decisions that the groups engaging in a collective action propose as the solution to a situation which was defined as a collective problem.<sup>[15]</sup> As in most cases of contention, the way in which such policy was framed by our respondents, verbally and in organisational documents, varied among the different actors from which we obtained information. Such variation reflected the different diagnostics regarding the effects of waste incineration, on which the contending discourses of technoscientists and environmentalists were grounded.

However, at first glance, this divergence stood in contrast to two facts that had a positive evaluation in both discourses. One refers to the name of their respective prognosis of solutions (prognostic frames) on the waste problem, and the other, to the agency and the ways of implementing them. These frames were identified with the *three-R policy* by most of the people interviewed in Spain belonging to the three different groups, and there was a wide acceptance of the 'EU directives' for that reason. This would appear to suggest a consensus which stands in contrast to the level of public contention over waste incineration due to the interrelations between these policies that I emphasised before. However, the different ways in which the verbs 'reduce', 'reuse' and 'recycle' were employed by environmentalists, company representatives and public officials in Spain break this image of consensus, and show the importance of discourse analysis

in trying to understand current social conflicts. The features of the contending discourses on the waste problem indicate that the consensus on the *three-R policy* was merely with regard to the names of such policies, and this is one of the reasons for this public contention during the 1990s. The first expression refers to a broad frame of reference with which most of the actors agree in general terms, but which means different things in these discourses.

A usual pattern among the advocates of waste incineration, that is, to present it as the *fourth R*: the revaluation of waste and its conversion into energy by means of incineration, may illustrate this analysis.<sup>[8]</sup> This term is widely accepted in the language of public administrations and is the title of one of the chapters of the National Plan for Domestic Waste, recently approved in Spain (1999). Another example is the frequent use of the word 'thermal recycling' by those advocating waste incineration when referring to this policy.<sup>[21]</sup> This example illustrates the positive value of the *three-R policy* and the discursive strategies followed by opposing groups in order to frame incineration as an expansion of this policy.

Such use of these words also illustrates the analogy between the framing tasks undertaken by these groups, which were highlighted above. 'Thermal recycling' and 'waste revaluation' are ways of promoting the techno-scientific discourse, in favour of waste incineration, by emphasising its supporters' concern with the exhaustion of natural of resources in the world, which has become widespread in Western societies during the last decades. The techno-scientific frame contends that incineration is a form of recuperation of the energy contained in waste, which will be lost if incinerators do not operate. These words have not been used in the interviews to advocates of waste incineration in England. This difference might be related with the lower intensity of the contention in England, which implied that the mobilisation of the waste companies was not viewed as needed, nor the discursive strategies followed by the incineration promoters in Spain.

In the environmentalist discourse, these arguments are rejected and these terms are considered to be euphemisms designed to disguise the hazardous effects of waste incineration and the economic interests of waste companies, which are viewed as the key factor promoting this policy. In this discourse, incineration is framed as an activity incompatible with that of recycling, which is usually presented as the central principle of a sustainable waste policy, together with waste reduction. The main so-



Photograph: TIRME, domestic waste incinerator at Son Reus, Majorca.

cial factors which are framed as standing in contrast to such policy are cultural and economic, and they are interrelated – as they should be in a systemic approach to environmental problems. Waste reduction is in contrast to the *use and discard culture*, an expression used by environmentalists to locate the problem in a wider cultural context in which the needs of citizens are artificially created. These needs are framed as the result of an uncontrolled lucrative activity of commercial enterprises that obtain substantial profits from it.

According to environmental activists interviewed in Madrid and Barcelona<sup>[22, 23]</sup> the policies of the council of Madrid and its Regional Government are centred on waste incineration instead of following the three-R policy. For them, incineration is but the last alternative to waste reduction, the first of the 3Rs, which requires a cultural change. This change should be grounded on the emergence of a new environmental consciousness, in order to produce less waste by consuming less and treating waste in a different way. This is viewed as the next step in this ordered prognosis of solutions, the separation of domestic waste at source and its treatment in order to recuperate, reuse and recycle as much as possible.

In Spain, the commercial dimension of the waste problem was framed as a central factor in the environmentalist frame on the solutions to this problem, according to which incineration and recycling are *incompatible policies*. This diagnostic is based on the following reasoning: (i) Incineration is big business because the concessionaire enterprises gain a double profit from the waste collection and its transformation into electric power. This latter profit is obtained in a non-free market since the price of this energy is regulated by the governmental institutions at a higher price per kilowatt-hour than the market rate, as mentioned below in reference to the principle of freedom of enterprise. (ii) The inner logic of commercial firms is based on the formal rationality principle of profit maximising; this is the

ground for the environmentalists' diagnostic frame explaining why the concessionaires of incinerators cannot be interested in the recycling of waste. This argument emphasises the high energetic power of the plastic materials of which recipients and containers are made, which represent more than a third of the total amount of domestic waste. Because plastic incineration is framed as the basic source of toxic emissions, these factors play a central role in the environmentalists' definition of waste incineration as a direct threat to people's health.

In England, however, this 'incompatibility frame' was not so manifest in the environmentalist discourse, a fact that does not imply full confidence in the waste industry. As in Spain, the waste companies 'are commercial enterprises operating according to the rules and logic of commerce', and they work in this field because they see waste management as a profit-making venture. In spite of the fact that in England this is also viewed with distrust by environmentalists and by some waste authority personnel, our research partners explain the professionalization of the waste industry by pointing out the concentration of waste management in the hands of capital-rich corporations and by the economies of scale associated with it. This development promoted 'higher standards throughout the industry, the wider adoption of international best practice, the cross-national diffusion of expertise, and enhanced possibilities for employment of highly skilled personnel, especially engineers'.<sup>[1]</sup>

## The Euro-directives and the modernisation of the waste industry

The features of the waste industry in England and its recent transformation have been described and explained by Rootes, focusing on the increase in scale as a source of professionalization. "The industry is a relatively small one and one which had, until very recently, a rather inglorious history of poor management and bad practice, paying only so much regard to environmental damage and effects upon public health as the vigilance and vigour of local authority inspectors succeeded in imposing upon them".<sup>[1a]</sup> He also relates this professionalization to the introduction of high-tech industry, which did not exist previously. Before the construction of the big high-technology incinerators, there were several small locally owned and operated incinerators in Spain and England, equipped with an obsolete technology and

without the environmental devices designed to control their emissions in order to meet the European directives issued during the 1990s.

Therefore, if there is a relationship between the increases in scale and the acquisition of the technological equipment designed to control the combustion emissions of waste incinerators, the transnational authority of the European Commission has been a central actor in this change in both countries. If this change is also characterised as a cultural change in the waste industry, in terms of the increasing professionalization of its personnel, the ecological modernisation discourse propelled by the European directives deserves the credit for that change. A central question, which I will address in future publications, is if this discourse and ideology have been major factors in the decline of the mobilisations against waste incinerators that took place in Spain at the end of this decade.

In any case, the process of transformation of the waste industry does not seem to be as straightforward, nor is it merely dependent on the laws of the economies of scale, if we take into account the cultural change implied in this process. The professionalization of this industry seems more complex and cannot be explained by this alone. For instance, in Spain, three small low-tech incinerators were still working in Biscay at the end of this decade. Paradoxically, this is the province where the Zabalgardi waste incinerator project has been delayed for more than six years, in spite of all the investments in high technology that were envisaged and in the public framing of this project done by the consortium of enterprises promoting it. In England, the situation of the waste industry is also characterised by the persistence of the old means of waste treatment since 'most waste disposal in England has been dumping to landfill, essentially a matter of dumping untreated waste into holes in the ground'.<sup>[1]</sup> This is a reason why this country has the second highest rate of dumping in Europe (90%) after Ireland (97%), according to the comparative statistics diffused by Zabalgardi.<sup>[8]</sup> Rootes views this traditional policy as a source of the conflict between the companies which for a long time dominated the industry with their traditional dumping procedures, from which they gained profits, due to their hostility "to high-tech alternatives such as incineration" and their interests in the continuation of landfill.<sup>[1a]</sup>

In the transformation of the waste industry and the penetration of the ecological modernisation assumptions, the Euro-directives on waste management are basic

institutional factors through which this process takes place. This is documented by what is happening in both countries since these directives came into force, through the increasing regulation by local and regional administrations of waste treatment activities. One of the first effects of these administrations' enforcement of the Euro-directives was the temporary or the definitive closing of the old incinerators that had been running in England and Spain before the 1990s (in Majorca, Barcelona) and did not meet the required control standards. This development has two relevant implications in the shaping of environmental policies: (i) It shows the relationship between the discourse of ecological modernisation and the practices of public institutions in order to impose stricter controls on a commercial activity which has an environmental impact. (ii) It raises the issue of state intervention in the private sector in order to protect the 'common goods' and prevent the technological hazards faced by our societies. The latter process also motivates resistance on behalf of the entrepreneurs in this field.

### Risk control and freedom of enterprise

A central tenet of the risk society theory is that the fight for the public framing of modernisation risks is acquiring a central role in important sectors of the economy, as these definitions have direct consequences in the industrial enterprises that are engaged in the production of commodities which are being put under the 'line of fire' of public opinion because they are considered to be a source of hazards.<sup>[7]</sup> In this sense, our data suggest that those policies aimed at reducing state intervention in economic life and fostering private initiative, which both liberal and social-democrat governments tend to apply nowadays, find their limits in those political decisions aimed at preventing or minimising the risks produced by these enterprises. It follows that there are important electoral dividends for the parties promoting controls on industrial firms in order to protect the environment and people's health, and those entrepreneurial activities legitimate the intervention of the state in economic life.

In our cases, transnational, regional and local political authorities played a central role in the introduction of this type of environmental controls, which are intimately related to the modernisation of the waste industry. As discussed below, other forms of state intervention in environmental poli-

cies we found were the economic support given by the public administrations to waste incineration enterprises and the regulation of the price of the electricity they produce. State intervention was justified with political reasons aimed at providing solutions to the problem of domestic waste. In the discourse of politicians, the importance of this problem, and the capacity of waste incineration to produce energy out of a renewable resource, justified waste incinerators in terms of the general interest of the population. I view the resonance of such discourse in public opinion as one of the reasons for the decline of mobilisations in Madrid and Majorca since 1997, when the incinerators started to work, due to the alignment of the mass media with this frame and to a sentence of a judiciary court declaring the Madrid incinerator innocuous. In the content analysis of the press, this was shown by a rapid decline in the number of reports on these issues.<sup>[24]</sup>

In order to contribute to the resonance of this *counter-movement frame*, a set of statistical data was presented by some of the administration officials interviewed, and in the documents they quoted, which also emphasised the physical volume of the waste problem. A document issued by the local council of Madrid estimated the production of daily urban solid waste in this city to be 4,000 tonnes, "which would be enough to fill the surface of the Bernabeu stadium up to about thirty meters in less than a month".<sup>4)</sup> Due to its 'experiential commensurability'<sup>[15]</sup> or the well known features of this space for a large sector of the Spanish population, the metaphor of the football stadium has gained considerable resonance in the public framing of the waste problem in Spain, and it has also been used in places such as Bilbao<sup>5)</sup> by the firms promoting waste incineration. The utility of examples in the framing of incineration as an urgent task is also related to the nature of metaphors, which are one of the oldest forms of knowledge in our civilisation.<sup>[25]</sup> This is why metaphors were very often used in the environmental contention in Spain by environmentalists as well as public administrators and company representatives:

- 4) Together with one in Barcelona, this is the biggest football stadium in the country.
- 5) This metaphor was used in Basque newspapers such as *El Correo Vasco*, which is influenced by the Basque Government and also emphasised this aspect of scale by asserting that the 380.000 tonnes of waste being produced in Biscay every year (1 ton per family and 330 kg per person and year). This amount could fill 11 football stadiums up to a height of 12 metres (*El Correo Vasco* 9-20-1994). A graphic example is in the videotape with which Zabalgardi promotes the incinerator in Biscay.



their use of popular grass-roots stands in contrast to, and formulates in concrete terms, the abstract categories of technological risks which cannot be directly perceived by the senses. To such a 'gigantic problem' the model of an Integrated Plant for Waste Treatment was a main element in the prognosis of solutions offered by the techno-scientific discourse. This type of plant was presented as fulfilling two objectives: (i) to recover the usable materials for recycling and the elaboration of fertilisers (compost), and (ii) 'to use the unusable waste for the generation of electric power through its incineration'.<sup>[8]</sup>

In the techno-scientific discourse, the framing of waste incineration as a policy grounded on the public interest also served to justify the adoption of legislative measures aiming to improve the profitability of private investment in this field at a state, regional and provincial level. Therefore, state intervention was portrayed as supporting commercial activity. This stands in contrast to the recurrent argument of those in favour of incineration regarding the conflict between the principles of state regulation and enterprise freedom, and to the mentioned incompatibility between 'big business' and environmental protection in the environmentalist discourse against incinerators. However, some waste company officials find it difficult to accept state regulation when faced with such a concrete effect as the purchase of energy from incineration at a regulated price. It is interesting to point out that this critique was formulated even in cases where such regulations implied an increase in the benefits of the firm in which the interviewee worked in a position of high responsibility.<sup>[30]</sup> This fact illustrates the role played by the *ideology of free enterprise* which, in this case, seems to stand in contrast to the guiding goal of economic rationality, which is assumed to provide the guiding motives to entrepreneurial activity. This is why this activity needs to be approached in these cultural terms in these cases, in the same way the discourse of 'ecological modernisation' has been conceptualised as an ideology in recent work.<sup>[26]</sup>

State intervention in the economics of the waste industry is a central issue in those environmental policies and conflicts in which the differences between these two discourses, in favour of waste incineration, became more manifest in Spain, a fact which appears related to the intensity of the contention over this policy. While the ecological modernisation discourse justifies state regulations in the field of environmental issues,<sup>[18]</sup> some of the company representatives interviewed in Spain defended the classic principle of enterprise freedom as a priority of rational policy.

The term 'sustainable' was seldom used in the techno-scientific discourse. A radicalised position with regard to this issue was presented by a private company official who worked as consultant in this field and who framed State intervention in waste policies as breaking the principle of equal opportunity on which the mainstream economic theory has been founded since Adam Smith. This person accused the national public administration of 'unfair play'<sup>6)</sup> and gave the example of a case in which the national Department of Public Works opened a competition for the cleaning up of polluted soils and gave it to one of its enterprises, although theirs was not the best offer. He referred to this fact as a source of great indignation among the private enterprises that took part in it.<sup>7)</sup>

Further information regarding the influence of the classic entrepreneurial ideology against state intervention among the Spanish waste industry comes from a high employee in one of the incineration enterprises in reference to the aforementioned state regulation of the electric power produced in waste incinerators. He pointed out that only two countries are subsidised in Europe for the price of kilowatt-hours produced in this process, precisely the ones where this research has been carried out (England and Spain), which means that the electric companies have to buy it at prices above the market rate.<sup>[30]</sup> He correlated this fact with the low degree of incineration in England and Spain in contrast to other countries where this level is higher and the market laws enjoy more freedom. The first point is consistent with the respective rates of waste incineration (8 and 6%) in England and Spain.<sup>[8]</sup>

### Authority and structure in the transformation of the waste industry

In both countries, the waste industry promoting and building incinerators is dominated by a few big corporations which follow the principles of functional efficiency and technological innovation.<sup>8)</sup> In Spain, the degree of state support to waste incineration appears to be related to the composition of the concessionaire societies, which tend to be consortiums of big construction companies and electric enterprises with interests in the sector of services linked to water and waste. Most of these construction and electric companies operate in the Madrid stock exchange, and some of them also have a presence in the foreign markets. Besides the old small incinerators that are being shut down following the EU regulations, in

Spain there are six companies running nine domestic waste incinerators at present, and the three plants in Barcelona are run by one private firm (TERSA). The usual form of private enterprise in this field is through administrative concessions, of an average time span of 25 years, to a consortium which makes available the considerable investments needed for their construction. Some company representatives attributed these costs to the expensive pollution controls (mainly carbon filters) required by the EU directives, and enforced by regional and national regulations. One of our respondents also used this factor to explain the high variation in the costs of these plants, which in Spain range from 30 to 180 million Euros (the Mataró plant and the one in project in Bilbao, respectively), according to some of our interviews and press reports.

However, this argument would also imply different degrees of enforcement of the EU directives, and there is another reason for those differences which is more consistent. These plants have very different waste incinerating capacity, from an average of 250 to 300,000 tonnes a year in the big ones in Majorca, Madrid and Barcelona (San Adriá) to the small ones in Girona, Barcelona (Montcada) and Melilla (between 48,000 and 36,000 tonnes).<sup>9)</sup>

The trend of capital-rich concentration in the English waste industry is also present in Spain. The consortium enterprise running the Majorca incinerator (TIRME) provides an example of this organisational structure: it is a private company founded in 1991 and integrated in equal shares by three important electric companies and two of the biggest real estate companies.<sup>[10]</sup> In Biscay, my previous analysis of the discourse fram-

6) Literally, 'not playing with the same arms' (*no jugar con armas pares*). The use of the word 'arms' indicates a view of a contention between the public administration and the commercial firms, which has previously been softened by the use of the word 'play'. This combination of struggle and game seems to be characteristic of the entrepreneurial worldview and of what we have called the 'techno-scientific discourse', since the latter is grounded on a conception of technology as the driving force confronting 'nature'.

7) "Because if you are the one to open the competition, the one to award and the one to participate, this is playing unfairly, this is a swindle (*timo*)". (Interview 1). Before working as a consultant, the interviewee had worked for an important state company dealing with waste management and he stated that these sorts of things caused his resignation in order to 'play fair' (*con armas pares*) with the private enterprise.

8) In England, this has been the result of mergers and take-overs of smaller private companies. [1a]

9) This information comes from an internal document of a private association integrated by the Spanish waste incinerator companies (AEV-ERSU), and its data have been updated in July 2000.

ing waste incinerators as grounded on public interest might be illustrated by the participation of public money (40%) in Zabalgarbi, the consortium of public and private enterprises promoting the plant.

Our research partners have emphasised<sup>[11]</sup> a different attitude towards state intervention in the waste industry in England, which they relate to the recent professionalization of this industry and the participation of large corporations in it. This development suggests two important features of this industry: (i) a wider diffusion of the ecological modernisation perspective among the British company personnel, due to an acceptance of the risk implications of their work. (ii) The relationship this has with two important factors of these controversies: a) State intervention in the regulation of this sector and b) the degree of public trust in the authority of the Environmental Protection Agency, as can be seen in the following quote by Rootes:

“If the more thoughtful industry personnel accept that any strategy embodies uncertainties and carries unquantifiable risks, they are nevertheless quick to seek cover in the legitimating role of the regulatory regime to which the industry is subject. The industry, we are told by waste company personnel, is the most tightly regulated of all and, because the industry is extremely tightly regulated, the public can be confident that any new facility will meet or exceed the standards required by the regulator, the Environmental Protection Agency (EPA). Probably because they recognise that, because of its history, public confidence in the industry is not great, waste industry spokesmen rely heavily upon appeals to the ostensibly neutral arbiter – the EPA”.<sup>[11b]</sup>

This highlights the need to differentiate between the political authority of the state, legitimating the decisions of public administrators at their different levels, and what has been viewed as a technical authority, represented by the environmental protection authority. The higher degree of confidence in the latter, we have found, seems to be related to the problems of credibility frequently faced by politicians and their organisations in the Western World nowadays. However, in the same way that these credibility problems affecting politicians change in different social contexts, the degree of trust in the environmental protection authority on matters of waste incineration was also different among environmentalists in England and in Spain – with lesser confidence in the EPA among the latter. The role of the environmental authority,

as a legitimate source of regulations and pollution controls regarding waste incineration, seems to be less relevant in Spain than in England<sup>[11]</sup>.

In reference to these credibility problems, in the discourse of the waste industry personnel in Spain this appeal to a classic environmental authority was recurrent, while the role of state authority was often criticised in especially derogatory terms. This appears to be related to the processes of institutionalisation of waste incineration policies in each country. While similar goals, aiming at introducing sophisticated technological alternatives to landfills, are sought after by the waste industry in both countries, according to our research partners,<sup>[11b]</sup> in England the driving force behind the professionalization of this sector has been the national government and the waste authorities, and the waste industry personnel seem to have been acting “in response to pressures from government and persuasion by the Environment Agency”, while this persuasion has not been so relevant in Spain. Furthermore, as Rootes reports<sup>[12]</sup>, the Conservative government “set up the EA and transferred to it the regulatory powers of the regional waste authorities in order to attain higher and uniform standards across England”. In the last section of this paper, I address a topic, which might be related to this finding.

## A duality of powers?

The political authority of the British and Spanish governments on waste treatment is exercised by means of their regulatory power on waste incineration, and on the related policies of reducing, reusing and recycling. If a central task in our sociological interpretation of environmental conflicts lies in the analysis of the power structure, the features of the latter in Spain show the need for a detailed analysis in the cases of contention we studied. In Spain, the regional plans for waste treatment have been approved during this decade, most of them since the mid-1990s, and the National Plan for Domestic Waste was approved in 1999. Because the political structure of this country is decentralised and waste management is a competence of the regional and local governments, it is difficult to speak of a unified national policy. An important aspect of the environmentalists’ diagnostic of the waste problem is the existence of what they call a ‘power duality’ in such important places as Madrid and Barcelona, due to the local and the regional powers following different waste policies (Madrid), and/or belonging to different political parties (Barcelona).<sup>[13]</sup> This definition of the



Photograph: TIRME, domestic waste incinerator at Son Reus, Majorca.

situation was not accepted by public officials, who attributed the differences in waste policies in cases like the one in Madrid merely to different management styles and backgrounds of the persons promoting them.<sup>[27]</sup> In a different sense, a Basque high public official explained the differences in waste policies within Spain by the existing differences between lifestyles and the consumption patterns in different parts of Spain.<sup>[21]</sup>

Our observation of the situation of the waste policies in Madrid documents in part the environmentalist frame of the duality of powers, and this also illustrates the complex power structure of the country. The existence of two different political authorities governing the region (the president of the Autonomous Community of Madrid, with a population of over a million inhabitants, and the mayor of the city, which has four million) was manifested in the different timings of the official arrangements making possible the selec-

10) ENDESA, GESA, Iberdrola, Dragados and Fomento de Construcciones y Contratas.

11) NB: its correct name in England is the Environment Agency (EA).

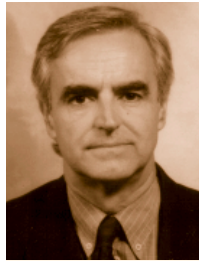
12) Comments to the final draft of this paper.

13) While the Socialist Party has been in the municipal power for the last and present mandates, the nationalist *Convergència i Unió* is the most voted party in the Regional Government. As pointed out by Pascual, the difference in waste policy seems quite clear in the fragment below, from an interview to a (Socialist) town councillor of Environment in one of the cases in Catalonia. When asked about the main objectives of his political party on waste management (in a distant and firm tone) “Well, eh the: Generalitat [Autonomous Government] . Eh... well, it’s in Barcelona: governments on Catalonia... and: it has its own waste policy [...] It has its plan. And we, as a consortium [of town councils near the Barcelona area], have our policy, well, we carry out our management. Well! We are always obliged by the rules...or the laws of the Generalitat, right? And we are NOT against them! It may seem now that we are against them, I mean. The Generalitat has ... the government: it has the government of Catalonia, and has the: right: and the obligation to write these laws and to legislate on the entire story, doesn’t it? (Interview 23:C-134)”[1c]



tive collection of plastic packages, containers, cans and tetrabriks. While in the populations governed by the President of the Community this has been a practice since its Autonomous Plan for Domestic Waste came into effect (January 1998), two years later a considerable part of the population of its main city still had no opportunity to follow such practice since there was no local policy of separation and collection of these types of waste. This is relevant for the contention over incineration for the reasons stated above, which refer to the impact of plastic in the framing of waste incineration as toxic and to the central role of such separation of domestic waste in sustainable policies. For instance, the population in which the main mobilisations against this incinerator arose (Rivas) is located in the area of competence of the Regional Government (which does separate plastic and other containers), while the incinerator is under the Council of Madrid, in the geographical limit with the Community of Madrid. While in Barcelona the situation described as a 'power duality' by environmentalists was due to the strong influence of its nationalist government in the design of the waste policy in Catalonia,<sup>[23]</sup> in Madrid, it is the municipal council that sets this policy for the large majority of the population, which lives in the main city.

To conclude, I would like to relate a central argument in this paper to its theoretical perspective. My claim has been that the different roles played by the technical and political authorities in the contention over waste incineration were related to the different intensity of the contention, which has been less relevant in England than in Spain. At the core of this situation lie the different frames from which the public perceives the political and scientific authorities, which are respectively represented by the national-state and the environmental protection agency. These different cognitive bases of a legitimate power are related to the aforementioned differences in the degree of contention in both countries. I draw this notion of the *cognitive basis* of current social conflicts from a classic sociological typology of the forms of social power<sup>[28]</sup> which I have expanded with this research of environmental conflicts. I suggest that this notion is useful to understand the relations between structure and action on which our study focuses, between the institutionalised forms of power and those current social conflicts which question them. This is a central topic in current analysis of Western modernisation and its impact on the relationship between society and nature,



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which has been conceptualised by Giddens and Beck as a crisis of the traditional scientific authority leading to the end of the Saintsimonian vision of an industrial order, which was grounded on expert knowledge and the unquestioned authority of their holders. In order to know more about the social dynamics of these conflicts and to save some of their important costs, this dual focus on structure and action can contribute to finding solutions, not merely to conflicts, but to the environmental problems which motivate them.

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Umweltvölkerrecht kann nur dann wirksam sein, wenn es von den Staaten tatsächlich eingehalten wird. Die traditionellen Mittel der Rechtsdurchsetzung im Völkerrecht tragen hierzu immer weniger bei.

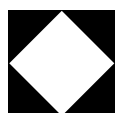
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